Delaware River Basin Commission
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Delaware River Basin Commission

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DRBC WATER MANAGEMENT ADVISORY COMMITTEE MEETING
May 2, 2008

COMMITTEE MEMBERS PRESENT:

Bob Molzahn	Water Resources Association, WMAC Chair
Hank Gruber*	US Army Corps of Engineers
Mike Holt	NYS DEC (via telephone)
David Jostenski	PA Department of Environmental Protection
George Kunkel*	Philadelphia Water Department (for Howard Neukrug)
Rob Lowinski*	US Army Corps of Engineers - Philadelphia
Stewart Lovell	Delaware DNREC
Joseph Mattle*	NJ Dept. of Environmental Protection
John Mello	US EPA Region 2
Mary Ellen Noble	Delaware Riverkeeper Network
Joanne Rufft*	Artesian Water
Senobar Safafar	NYC Department of Environmental Protection
Ron Sloto	US Geological Survey
Glen Stevens	Philadelphia District US Army Corps of Engineers

*****Denotes alternate or non-official member.

DRBC STAFF:
Carol Collier, Executive Director
Bob Tudor, Deputy Executive Director
Dr. Kenneth Najjar, Planning & Implementation – Branch head
David Sayers, Planning & Implementation
Jessica Sanchez, Plannin & Implementation
Kent Barr, Planning & Implementation

REVIEW OF MINUTES / REVIEW AND APPROVAL OF AGENDA:
The meeting was called to order at 9:40 am by Mr. Bob Molzahn, chair of the committee. The minutes from the June 14, 2007 meeting were reviewed and approved without changes. Today's agenda was also reviewed and approved by the committee.

WATER SUPPLY PLANNING:

Introduction/Purpose of Meeting: Bob Tudor, of DRBC, stated there are many things going on related to water supply planning. This is a good opportunity to start to focus the different work products under development and how can they compliment one another over the next year so we can make some very specific recommendations. There are things happening at different scales, county, watershed, state and basin. Delaware began to recognize they had water deficit situations

and a new drought of record in 2002. Delaware wanted to have enough water so they didn't go into a drought emergency in the Northern part of the state. They were able to determine their focus area in terms of a part of the state and to determine demand for the future in the year 2030. A need for one billion gallons of additional water supply was initially determined. Over a period of years, two billion gallons of additional water supply have been identified. This work is being done with heavy involvement by the water utilities, as well as others. This is the idea we have for the whole basin. In the next 2 to 5 years, we want to be able to refer back to the old DRBC Level B study where we identify facilities and determine what the new Level B facilities would look like for the year 2030. Our guidance for how we do that is the *Water Resources Basin Plan*, in which KRA 1 deals with sustainable use and supply. Pennsylvania is approaching water supply planning efforts and is reviewing water supply from a watershed budget persepective, determining the water in and water out. New Jersey is looking at interwatershed transfer and some of those issues; and probably within the next year going to be coming out with their focus areas and begin to put effort towards water supply enhancement or conservation initiatives to address their future situation. We would like to hear what those efforts are and how they could potentially pull together.

Federal Coordination Summit: Carol Collier, DRBC Executive Director, announced the 2nd Federal Coordination Summit will be May 15, 2008. The purpose of the summit is to bring together all the federal agencies, as well as state agencies that work within the basin. One of the subjects is going to be water supply management and the topics the WMAC is discussing today. It provides a really great opportunity for discussing actions through our federal partners.

Relationship Among Planning Efforts: Ken Najjar reviewed a matrix (handout) showing the transition between the high level work Bob Tudor discussed and the specific work the states, USACE, and DRBC will present. Key elements of the matrix included: study scale, water use sectors under consideration, drivers of future demand and time horizon, and criteria for determining areas of concern. The matrix pulls together the key studies going on throughout the basin for the purpose of making sure we are relating to each other and understanding how issues are being addressed; as well as looking for ways of making sure we have consistency in reviews. Dr Najjar noted that with all the plans converging in terms of timeline, it was a good opportunity to compare the different approaches. Via telephone, Mike Holt of NYSDEC noted that New York is still working from their Water Resources Management Strategy developed in 1989. This has not been updated recently.

State Water Supply Planning Results:

Delaware

Stewart Lovell of DNREC presented Delaware's water supply planning efforts. The original planning effort was started by the Water Resources Agency for New Castle County at least 20 years ago. A series of 8 volumes were produced in the mid 1980's by the WRA that clearly identified that there were going to be water supply shortages in the northern end of the state. That in turn led to a project development scheme that primarily identified a new large reservoir that would meet the projected deficits. A project committee was formed under the leadership of the WRA to pursue development of this reservoir. There was a primary and secondary sight selected. The primary being a very large freshwater wetlands which required a full-blown environmental impact assessment, involving the EPA and the USACE. The project sponsors, the state, the county, and the utilities, Artesian Water and United Water of Delaware, funded this study, which was unsuccessful due to political, environmental, technical, and financial difficulties. It was

never actually completed and there was a lot of resistance to the idea of trying to pursue a single entity project that would satisfy everyone's needs. The entire project disintegrated.

There was then a shift in gears precipitated by the occurrence of the drought in 1999. With the experience of not being able to develop a single project, the Governor mandated formation of a working group which evolved into the Water Supply Coordinating Council (WSCC). A distinguishing factor of Delaware's planning effort is that it wasn't state-level driven. It was a collective development scheme that has gone very successfully because in the course of 4 or 5 years Delaware went from serious deficits to having approximately 50% surplus above the projected demands. There are still projects that are in development which will add to that surplus. Effectively, the state completely cured the problem for the next 20 years or so, under foreseeable drought conditions.

The focus over the past 10 years has been on northern New Castle County because of the droughts, but as part of the mandate, the WSCC has expanded to look statewide due to the growth trends and there being a lot of concern with future water supply. Our attention had to be focused on the rest of the state now that the north end has been addressed. This is all documented in a series of reports that come out roughly annually, of which the current volume is 11. The same process was completed for Southern New Castle County. A demand/supply analysis was conducted which shows ample supply. Delaware is very confident with the accuracy of the planning process because for the past 8 years, during peak demand period, utilities give us their daily demand numbers so we have a very accurate feel for what the current and projected demands are. We do back-analyze to see how accurate the projections were, and they've been within 5%. In general, we have seen a significant decline in per capita water use. This is a result of aggressive conservation plans that addressed issues of rate structures, education and water efficient devices. Delaware is in the process of doing supply update reports for Kent County and Sussex County. The effort is approximately 2/3 completed. This committee will sunset by the end of 2009.

New Jersey

Joe Mattle of NJDEP, gave a PowerPoint presentation on the state's water supply planning efforts. One of the main water planning drivers was the drought emergency of 1980 and 1981. Out of legislation, came the concept of doing a statewide water supply plan for New Jersey. There was also funding set up for capital improvement projects and associated studies. The first plan was done in 1982, which allotted 180 days for it to be assembled. This plan reviewed the state as six large areas. Subsequently, the first update was done in 1996 in which New Jersey started to take a closer look and got into 23 Water Management Areas. The update to the 1996 plan is now in progress and the state has further refined its approach by using the HUC11 delineations and has 151 watersheds to be reviewed.

Some of the goals of the plan were to identify the water use trends in those HUC11's, establish water budgets for each, come up with sustainability thresholds, and identify areas as surplus or deficit based upon current use and future projected use. There was a large difference between projected and actual use. New Jersey is reviewing overarching policies, water conservation, beneficial reuse, and potentially what any statutory or regulatory changes may need to be recommended as we move forward through this process. New Jersey has confined aquifers, unconfined aquifers, and surface water. There are differences between the northern and southern part of the state. The southern part of the state is referred to as the "coastal plain", and at that point there are confined aquifer systems. Anything up in the northern tier, for all intents and purposes are treated as unconfined units.

New Jersey is projecting a population of just over 9.5 million, using municipal numbers, which means approximately another 1.1 million people in the next 12 years (by 2020) and the associated additional demand that goes with that growth. A demand of 100 gpd was used to quantify additional demand, which means the state is contemplating another 100 million gallons of supply, or higher. In doing projected demands through 2020, NJ continues the conservative approach, assuming all future demands will be served by existing water supply system.

Pennsylvania

David Jostenski of PADEP, presented Pennsylvania's state water supply planning efforts. The state's previous attempt began in the late 1960's, early 1970's, and extended over a decade, into the early 1980's. The end result was a lot of information put into approximately 20 volumes of a state water plan which were used early on but then sat on a shelf the latter part of the years as the information became increasingly outdated.

Around 2002, Act 220 required the water plan to be updated. Effectively, since 2003, those updates have been underway. Work to be accomplished had to be chosen carefully due to budget constraints. Work which fell under the requirements of the Act was to identify critical water planning areas (CWPAs). The strategy that PA has embraced is heavily focused on developing the data and tools to identify those hotspots and critical areas. Pennsylvania DEP partnered with DRBC, SRBC, ICPRB and USGS. The USGS has helped since 2003 in developing a GIS tool to do this analysis. Essentially, it's a simple mathematical approach of looking at various points across the state, what's coming in, what's going out, and comparing the net withdrawals against water availability. The bar or gauge that is used as far as the available resource, would be a percentage of Q710. The PA Fish & Boat Commission was instrumental in guidance towards establishing 50% Q710 for non-carbonate trout streams and 30% for carbonate trout streams.

The model that USGS helped to develop has 8,000-10,000 of these points of interest across the state. It considers withdrawls that have been registered in the department since 2003, and all public water suppliers also report, regardless of how much is withdrawn. We've also had the river basin commissions involved with putting our discharge monitoring reports into a database. In the model we considered ground water and surface water to be the same, so effectively one gallon withdrawal from the well equals one gallon withdrawing from the stream. The initial screening did not take into account any mitigating effects of reservoirs or conservation releases. This issue could not be handled within the model itself, so it will be addressed within subsequent studies which DRBC is involved in. PADEP is anticipating this work being done and available by Fall 2008. Once CWPAs have been indentified a Critical Area Resource Plan (CARP) will be developed in order to address the water resource issue. The number of CARPs developed will be dependant on the availability of funds.

Some of the other things PA is doing as part of the State Water Plan is a data exchange effort with DRBC where we are going to synchronize our databases with the various commissions for them to be able to obtain the registrations and reports directly.

Multijurisdictional Study.

David Sayers gave a PowerPoint presentation on the DRBC/USACE Multijurisdictional Study. In FY06, the Energy and Water Development Appropriations Act was passed, directing the Secretary to conduct a comprehensive analyses to examine multi-jurisdictional use and management of water resources on a watershed or regional scale. The Philadelphia District

USACE submitted a proposal for a project in the Delaware River Basin which would primarily address flood risk management and water supply issues. This study was one of five selected nationwide.

Several studies provided background to the multijurisdictional study being discussed today. This started off with the Level B study in 1981 which set out to identify some of the water resource issues, supply issues and possible options to addressing these issues. Other background studies included the *Water Resources Plan for the Delaware River Basin*, particularly KRA #1, sustainable use and supply. That plan launched joint studies between USGS and DRBC, to which the WMAC had a large input: Water Budgets for Selected Watersheds in the Basin and Groundwater Availability Assessment. Since those studies, DRBC has been working an internal study called the Supply/Demand Status Report. We've built on all these components for the multijurisdictional study.

The watershed scale that was chosen for the analysis was based on approximate HUC 11 delineations and was the same watersheds used in the aforementioned USGS studies. It is important to choose a watershed scale that fits the available data.

A constant challenge for DRBC is collecting and managing water withdrawal data across the four Basin states. With significant effort, a basin wide water withdrawal dataset was established for 2003. Once the data were assembled, choosing the methodology for projecting demand was also a key challenge. As part of its support for Pennsylvania's state water plan development, DRBC partnered with CDM to review demand forecasting methodologies and to identify the most appropriate drivers to develop water demand estimations for the Delaware River Basin. The WMAC has previously received several updates on this study. Given the nature of the basin and differing levels of data availability, a single method was not necessarily the most appropriate or most accurate approach. After a review of the available information was performed, we devised an approach that had common elements, but varied between different states to take advantage of better information, where it existed. DRBC used a disaggregated approach, which is to drive the demand for each sector based on the most appropriate factors. This will avoid using population to drive everything, a relationship that we know is not always appropriate. A matrix was presented that showed, by state and by sector, the data input into the analysis. For the study, a baseline of 2003 is being used with a projected horizon of 2030, with five-year increments, starting in 2005.

Another significant challenge was identifying the availability of supply. We've looked separately at groundwater and surface water, comparing to both the withdrawal component and the consumptive use component of water demand. Another component is to consider both average and peak demands; the analysis presented today will focus on peak demands, when the systems are most stressed. In addition to the watershed-based analysis, a separate river-based analysis for the Delaware, Lehigh, and Schuylkill was done which recognized significant demands on those rivers.

A series of slides were presented describing the findings of the report. The key findings were the areas of stress identified in the southeastern Pennsylvania Ground Water Protected Area, the New Jersey Critical Area #2 and three watersheds in Delaware. Stewart Lovell noted that two of the watersheds highlighted as problems in Delaware were not familiar to him. This led to a discussion about data availability for the agricultural sector. Due to sparse reporting from this sector, estimates from the Agricultural Census were used. In general this information is available at the county level and may not be adequate for this scale of watershed analysis. It was noted that DRBC will work with DNREC to resolve these issues. The Pocono area showed the highest rate of increase in water demands, although based on this analysis scale, those future demands do not

necessarily mean inadequate supply. Water conservation was included in the demand forecast methodology and this has been factored into the assessment. A key conclusion from the study is the importance of understanding demand growth from the power sector in the Basin. This sector represents the largest water use sector and the one that is projected to grow the fastest. The importance of this sector highlighted the relevance of the point-based withdrawal assessment that was conducted as part of this study, for those withdrawals on the Lehigh, Schuylkill and Delaware Rivers, as this is where most power generating facilities are located.

Glen Stevens and Rob Lowinski of USACE presented the final portion of the multijurisdictional study, which was to assess the scale of the supply-demand imbalances and identify options for addressing them. The PowerPoint presentation described how the potential impacts of climate change and extended drought conditions were factored into the assessments of water availability. It was noted however, that although this study considered these factors by means of developing alternative scenarios, the likely impacts of climate change and possibly a new drought of record would require significant additional study.

Although it was noted that many alternatives could be considered to address supply-demand imbalances, the primary focus of this work presented was additional supply-side storage options. New facilities on Maiden Creek, French Creek and at Evansburg as well as modifications to FE Walter and Blue Marsh reservoirs were all identified as potential projects that would provide additional storage to address surface water deficits on the Delaware and Schuylkill rivers. The Schuylkill River was shown to be the area with greatest potential future supply issues, mostly driven by additional water demand for the Power sector. Additionally, the intakes at Point Pleasant and Delran could provide supplies to address watershed deficits in the PA Ground Water Protected Area and the NJ Critical Area #2.

In summary, Glen Stevens noted that although the study is almost completed, the results presented today were still preliminary and subject to further refinement, including consideration of comments heard during today's discussion. It was noted that water availability data for the Schuylkill needed to be examined more closely, due to the complexity of withdrawals and discharges in that system. An alternative gage on that river would like be chosen to verify the results.

Due to the above agenda items taking longer than anticipated, several items on the meeting agenda were not discussed. These items will be included on the next meeting agenda. The meeting concluded at approximately 3:00pm.